



For Immediate Release
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EPA Open House Highlights Research on Harmful Effects of Airborne Particles

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Research Triangle Park, NC.....Airborne dust, or particulate matter, the same thing that gives us pretty red sunsets, is estimated to result in premature death for thousands of Americans each year. Increases in asthma attacks, hospital admissions, and childhood respiratory illnesses are health effects that have been associated with breathing fine particulate matter, one of the major air pollutants regulated under the Clean Air Act. But questions remain: What does PM do to people? Who is affected, and why? What is it about PM that causes effects? What are we doing to understand these risks?

An Open House on Nov. 5 for scientists and the public will provide an overview of particulate matter research being conducted at the U.S. Environmental Protection Agency's National Health and Environmental Effects Research Laboratory (NHEERL) in the Research Triangle Park to address these questions. EPA has been directed by the President and Congress to provide the scientific information needed to better understand how airborne particulate matter is impacting public health and causing the observed adverse health effects. With guidance from the National Academy of Sciences, a major research initiative on particulate matter is under way at the agency's research facilities.

The Open House, entitled "NHEERL Particulate Matter Research: Addressing Critical Human Health Issues," will be held 9 a.m. - 3:30 p.m. at EPA's Environmental Research Center, 86 T. W. Alexander Drive. For registration information, call the open house coordinator at 919-541-5193. There is no charge to participate. At the Open House, EPA scientists will discuss their investigations and recent findings on particulate matter.

EPA set new standards for particulate matter in July 1997 to increase protection of the public health. Particulate matter is a broad class of materials in the air that originate from industrial manufacturing, automobile exhaust, forest fires, fossil fuel combustion and other sources. The standards were changed to add smaller particulates, measuring less than 2.5 microns in diameter. The smaller particles are more likely than larger ones to reach deeply into the lungs and cause irritation or damage.

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“The research that is conducted here in the Research Triangle will directly impact the decision making for the next review of the particulate matter standards in 2002, ” said John Vandenberg, assistant laboratory director at EPA. The agency is required to review the standard every five years.

Among the questions being explored in particulate matter research are: (1) what types of particles are most likely to be harmful to human health, (2) how are the particles causing damage, (3) what subpopulations are most at risk and (4) what physiological responses occur with exposure. Some of the recent findings of research on health effects to be reported at the Open House are:

- Particulate matter containing metals may pose the greatest risk to human health. Studies in the Utah Valley, an industrialized area, indicate that the toxicity of the airborne particles is related to its metal content. Iron, copper, zinc, nickel and vanadium have been shown to play a pre-eminent role in inducing toxicity, triggering aggressive inflammatory responses in cultured lung cells, laboratory animals and humans. In addition, some metals appear to be more dangerous than others, suggesting the specific metal composition of particulate matter is very important in determining both the type and severity of lung injury that may occur.
- A pilot study on the elderly in Baltimore, Maryland, found that individuals with underlying cardiovascular disease may be at greater risk to the health effects of fine particulate matter. People with pre-existing heart problems may have diminished ability to respond to the stresses caused by exposure to particulate pollution. Those with underlying disease exhibited lower heart rate variability, a factor in sudden death from cardiac arrest. The study sheds light on possible biological responses to particulate matter exposures that may explain the observed adverse health effects. A full-scale study on the elderly is being conducted to verify results.

The open house will include scientific poster displays of ongoing particulate matter research and six platform presentations by scientists on the health effects of particulate matter.

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